



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/118,080	07/17/1998	WARREN M. FARNWORTH	M4065.067/P0	8629

24998 7590 09/03/2004

DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
2101 L STREET NW
WASHINGTON, DC 20037-1526

EXAMINER

CHAMBLISS, ALONZO

ART UNIT PAPER NUMBER

2814

DATE MAILED: 09/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 1-7, 10-18, and 31-33 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,858,815	Heo	1-1999
6,121,688	Akagawa	9-2000
5,559,055	Chang	9-1996

Master Bond Inc. " Master Bond Polymer System EP31 " Technical Data Sheet, pp. 1 and 2.

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 2, 4-7, 10-14, and 16-18, insofar as being definite, are rejected under 35 U.S.C. 103(a) as being unpatentable over Heo et al. (U.S. 5,858,815) in view of the Admitted Prior Art (Master Bond Polymer System EP31).

Heo et al. (U.S. 5,868,815) and the Admitted Prior Ad (Master Bond Polymer System Claims 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP31) as applied to claims 1 and 13 above, and further in view of Chang et al, (U.S. 5,559,055).

Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heo et al. (U.S. 5,868,815) in view of Akagawa (U.S. 6,121,688).

(11) Response to Argument

Appellant contends that a prima facie case of obviousness is not establish for combining the Master Bond adhesive for the Heo adhesive. Heo discloses an adhesive (i.e. epoxy) located between a semiconductor chip 11 and a dielectric layer 22 (see col. 5 lines 18-36; Fig. 4B). Heo fails to disclose a low temperature curing adhesive material that cures to about 90% of its maximum strength within 2 to 3 hours without exceeding 1500 F. However, the Admitted Prior Art discloses an EP31 epoxy that is a two-component room temperature (i.e. low temperature) curing epoxy that cures at 90% maximum strength developed within 2- 3 hours without exceeding 150 degrees F (see page 1, line 10 under Product Properties). Heo and the Admitted Prior Art both disclose substantially the same environment of an adhesive utilized in structural bonding applications. Therefore, one skilled in the art would have readily recognized substituting the EP31 epoxy for the epoxy taught by Heo, since the EP31 epoxy has a high peel strength and good adhesion to a variety of materials including metals, plastics, rubbers, ceramics, and glass in structural bonding applications and a superb electrical insulator as taught by the Admitted Prior Art (Master Bond Polymer System EP31).

In regards to all adhesives as possible substitutes for the Heo adhesive 30. The examiner bases the substitutes based on the composition of the EP31, which assures good adhesion (i.e. a strong bond) misalignment between the tape and integrated circuit would be avoided, since the tape and integrated circuit will not be able to shift (i.e. misalignment) thus alignment will be maintained between the tape and integrated circuit. Furthermore, the ultimate good in semiconductor design is to have stability when attaching components (i.e. tape and integrated circuit) to prevent failure in the

semiconductor device. Thus, the use of EP31 epoxy provides that stability between the tape and integrated circuit.

Appellant contends the motivation "superb electrical insulator" adds nothing in terms of motivation since there is nothing in the references, considered singly or together to suggest that it would have been of any advantage to have a "superb electrical insulator" between the Heo chip 11 and film 21 when a non conductive layer already exist. The "superb electrical insulator" does add something to the motivation because the EP31 is a room temperature epoxy provides a strong bond between structural components (i.e. chip 11 and film 21) while maintaining a superb electrical insulator instead of diminishing in electrical insulation capabilities.

In regards to the examiner ignoring the limitations low temperature curing aspect of the adhesive material of claims 1-7. The examiner has not ignored the limitation since the examiner provides a secondary reference (i.e. Master Bond Polymer System EP31) to provide this teaching.

Appellant contends that Claims 10-18 are allowable based on the adhesive that "cures to about ninety percent of its maximum strength within twenty four to thirty six hours at room temperature and capable of curing to about ninety percent of its maximum strength within two to three hours without exceeding one hundred fifty degrees Fahrenheit so as to avoid misalignment". The Admitted Prior Art (Master Bond Polymer System EP31) discloses "cures to about ninety percent of its maximum strength within twenty four to thirty six hours at room temperature and capable of curing to about ninety percent of its maximum strength within two to three hours without

exceeding one hundred fifty degrees Fahrenheit ° (see page 1, lines 9 and 10, under Product Properties). Based on the composition of the EP31, which assures good adhesion (i.e. a strong bond) misalignment between the tape and integrated circuit would be avoided, since the tape and integrated circuit will not be able to shift (i.e. misalignment) thus alignment will be maintained between the tape and integrated circuit.

Appellant contends the examiner is suggesting all bonding materials as a possible substitute for the Heo adhesive, which is not a proper basis for a 103 rejection. The examiner is not stating that all bonding materials are substitutes for the adhesive of Heo, but the anisotropically conductive adhesive material taught Akagawa is a substitute for epoxy layer used on a chip (see col. 11 lines 45-57). The word semiconductor device means semiconductor chip, integrated circuit, or die.

In regards to the " additional " as a source of electrical connection for the " semiconductor device ". The conductive property of the anisotropically conductive adhesive provides additional electrical path between the semiconductor device (i.e. semiconductor chip, die, or integrated circuit) and an external device (i.e. another chip, die, integrated circuit, printed circuit board, carrier, or substrate).

For the above reasons, it is believed that the rejections should be sustained.

Application/Control Number: 09/118,080
Art Unit: 2814

Page 7

Respectfully submitted,



Alonzo Chambliss
Primary Examiner
Art Unit 2814

September 2, 2004

Conferees

Wael Fahmy, SPE *W.F.*
OK.

Olik Chaudhuri, SPE

DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
2101 L STREET NW
WASHINGTON, DC 20037-1526